
Approaches to Regulation of the Information Space of the Regional Social and Economic Complex in the Russian Federation

Oxana Andreevna Polukhina¹, Dijid Sergeevna Bartaeva, Medegma Tsyrendorzhievna Budazhanayeva and Lubov Nikolaevna Saibonova

Abstract:

In order to evaluate the development potential of the information space of Russian regional social and economic complex, the authors have suggested a methodology for its analysis allowing to single out key problems of the development of the information space, identify the way of its regulation, thus creating new organised information space. To do that, we specify the definition of information space, describe its major development paths and the process of creation of new organised information space.

The analysis of information space includes social and economic analysis of the region, level of the region's intellectual development, analysis of innovative development of the region, level of the region's information and communication technology equipment.

According to the suggested method, we analysed the information space of the Republic of Buryatia and identified main factors furthering or hindering its development. As a result of the conducted analysis, the authors have suggested several approaches to regulation of the information space in the region.

Key Words: *Information space, economics, region, information society.*

JEL Classification: *O10, O18, O33*

¹East Siberia State University of Technology and Management, 670013, Russia, Ulan-Ude, Klyuchevskaya ul., 40B/1

Introduction

In the age of globalisation and growing competition on the world market the path of innovation becomes the basis for successful development of the regional social and economic complex (RSEC). One of the main factors of RSEC development is using information and communication technologies (ICT) in social and economic activity of the society, government and business.

Present level of ICT allows expanding the information space, contributing to the creation of favourable conditions for innovations and increasing social vertical mobility establishing contacts between the government, business and households. Therefore, one of the principal tasks of the government is effective communication of the regional, social and economic complex issues at all levels.

The goal of the research is to define the paths of development in the organisation of the information space in the regional social and economic complex. To do that, we need to specify the definition of information space, develop the methodology for RSEC information space analysis and, depending on the results, identify principal approaches to regulation of the information space of RSEC.

The object of the research is space and the subject is regulating space – the government. The information space of the region is studied from the perspective of the regional social and economic complex where government bodies act as managing institutional units.

To analyse the information space we used the following initial data and sources: government statistics, results of social studies of different organisations, analytical reports on ICT development and observation results. Sample observation of the population of rural areas was conducted in the form of questioning of households of distant areas of the Republic of Buryatia.

After the fall of the Soviet Union the united information space of the country was destroyed. Political events, sovereignisation of autonomous republics, territories and regions, regionalisation of Russian mass media, slackening of economy significantly changed the situation in the media space. Creation of the Commonwealth of Independent States could not have considerable influence on the recovery of the united information space of CIS (Shabalina, 2001; Kossova *et al.*, 2014; Vovchenko *et al.*, 2017; Akopova and Przhedetskaya, 2016; Shekhovtsov *et al.*, 2017; Dzhukha *et al.*, 2017).

Formation of the united organised information space is one the most systemically important factors of successful development of the regional social and economic complex, which is acquiring a new quality today. The united information space will allow increasing social vertical mobility, to optimize business processes, to process

ever-growing flow of information, to provide the security of these processes and information.

There are European, American and Asian lines of development of the information space (Vershinskaja, 1999). European line presupposes the balance between government control over the market and spontaneity of its development taking into account the fact that the role of each may change with time. For instance, "Information society 2000" programme (Denmark) prohibits the market from the development of the strategy of information highway implementation. In Sweden the government manages, controls and guarantees the interests of the market and individuals.

The main goal of "eEurope" programme (European Union, 2000-2002) is to secure competitive strength of the economy and its rapid development and formation of all-European information space. The French programme "Government Action Program for Information Society" (1998-2000) was aimed at overcoming digital inequality and transferring to information society.

American and English line of informatisation includes minimisation of governmental functions during the process of informatisation, the main role is given to private individuals and investors: full liberalisation of the information technology market, restriction of state regulation in the field of telecommunications. "National information infrastructure" programme (USA, 1993) is aimed at increasing the efficiency of governmental work, at keeping the world leadership of the USA in science, equipment and technology, at information availability. "UK online" programme (Great Britain, 2000-2002) is focused on the achievement of world leadership in cognitive economics (Vershinskaja, 1999; Bashmakov *et al.*, 2015; Salimova and Makolov, 2016; Stroeveva *et al.*, 2015; 2016).

The Asian development line of information space implies connection between social transformations and cultural value. For instance, in 2001 "Information and technology development strategy" (e-Japan Strategy) was adopted in Japan in order to create the legal basis for the development of information society in Japan; for securing the informatisation of government authorities; for providing the population with high-speed Internet access; for training high-skilled staff to work in new conditions of the information society epoch.

In 2010 "Electronic Russia" programme aimed at the implementation of "electronic government" technologies was completed in Russia. This programme is only formal and the results are vague and general, unlike the concept of the Ministry of Telecom "Informatisation development in Russia until 2010" with more defined lines and results. Unlike European programmes, where electronic business, electronic government and e-commerce make a united integration space, "Electronic Russia" programme did not presuppose the integration of all online-technologies.

“Information society” state programme has been launched in Russia in order to create a comprehensive and effective system of using information technologies during 2011-2020. This state programme should result in the creation of modern information and telecommunication infrastructure on the whole territory of the Russian Federation; achievement of outrunning growth of Russian market of information and telecommunication technologies as compared to the global level; considerable reduction of transaction costs in the economy through standardisation of the processes, interaction environment and implementation of information and telecommunication technologies; achievement of technological independence of the Russian Federation in the field of information and telecommunication technologies. (State programme of the Russian Federation “Information society 2011-2020”).

On 1st November 2013 the Government of the Russian Federation adopted “Development strategy of information technology industry in the Russian Federation for 2014-2020 projected for the years 2025” which should contribute to the improvement of investment climate in Russia, increase the number of highly productive working places and production of Russian products in the field of information technology. The strategy defines priority lines of technological development of the country which should be supported by the government.

In 2014 the Government of the Russian Federation approved the concept of informatisation until 2018 in which key priorities for the development of state information services in 14 key fields were defined and typical IT infrastructure of a modern region and its key components were described.

The works on the development of information space in advanced countries are conducted upon the initiative and under the patronage of principal officers of the government. For instance, in the USA, Great Britain, France, Germany the development of telecommunication and communication network, computing machinery and information systems was conducted upon the initiative of the Administration of the President, prime ministers and with financial support from state budget and various non-state and corporate funds.

Currently there is a new spiral of development of the National Information Infrastructure: Agenda for Action in the USA upon the initiative of the President of the USA aimed at reinforcing the country’s position as the most developed information society in the world. State information profile of the USA (Government Open System Interconnection Profile - GOSIP) has the status of the recognized international standard. In Russia only individual components of the information space are developing.

Methodology of Information Space Analysis

Foreign and Russian authors study different aspects of the information space. Supporters of economic approach such as D. Bell (supporting the concept of

information society), V.L. Inozemtsev and I.Ya. Levyash studied the information space as a resource of economic development, in the first instance in the conditions of consumer society.

Technological approach by E. Shidler, I.S. Melyukhin, A.V. Lebedev and others in the study of the information space focuses on the change of technologies and implementation of scientific innovations in the process of social development. Political approach by Z. Bauman, A. Giddens and K. Lash is aimed at detecting the struggle of political groups for the control over information in the information space. Finally, socio-cultural approach by A. Toffler, P.K. Ogurchikov, E.V. Listvina and others define the role of the information space in the process of social and cultural identification of an individual (Bell, 1965; 1973).

The foundation of communicative approach to the information space is created in the works of J. Habermas. In his futurological works M. McLewin shows a possibility of transition from communicative to communicational aspect of the research of information space. Particular aspects of the considered range of problems are developed in the articles of F.N. Furs, D.V. Hovalyg, D. and Sh. Tkachyov. (Nenashev, 2008).

In the works of European and American authors the information space is usually called Information superhighway or Cyberspace. American initiative for the creation of national information infrastructure eventually became international and received the name of global information infrastructure (Heim, 1994, The Global Innovation Index 2014).

According to Michael C. Heim's understanding, virtual space contains information equivalent of things. In this case virtual means imagined, information space becomes space when it is reflected in an individual's consciousness. And that is why only a man defines the width and content of the information space.

In recent decades the notion of the information space has been mentioned more and more often in Russian scientific literature as well. It is mainly the result of adoption of "Concept of the formation of united information space" in 1995. In 1997 Parliament hearings on the topic of "Information space development in Russia" and "On the development of information space" took place.

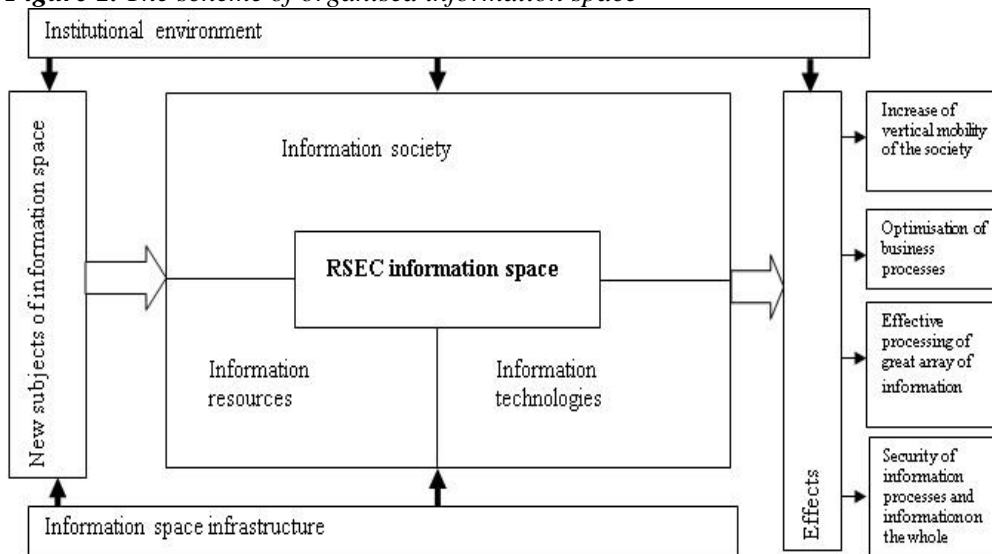
In 1998 and 1999 the Committee on the information policy approved the "Concept of state information policy" and the "Concept of the formation of information society in Russia", respectively. The formation of united information space (UIS), according to Russian authors, is closely connected to integration processes typical for post-industrial epoch (Information space of Russia: structure, operation specifics, evolution prospects).

Information space and information society were studied by many scientists, but the most interesting are the works “Universum Information Society” By N.N. Moiseev where the scientist defines information society as “...constructions of the society, creation of which is greatly influenced by natural mechanisms of self-organisation, as well as the development of information technologies”, which “...cannot appear by itself without the guiding role of Collective Intellect” (Moiseev, 2001).

Another interesting scientist is professor I. Dzyaloshinsky with his report “Information space of Russia: structure, specifics of functioning, evolution prospects” where he uses three approaches to study the information space (Information space of Russia: structure, operation specifics, evolution prospects). The first is set by the notion of “space” as common metric space and creates the meaning of “informatised” physical space. The second is set by metaphorical understanding of “information space” as the space of certain information interaction. Finally, the third, social discourse is also possible-information space is considered as the field of relationships between people and communities concerning information.

Taking into account worldwide and Russian experience in the field of research of information society and information space, we should specify the definition of information space from the point of view of institutional approach, so we understand information space as the space where all types of institutional sectors are localised: state administration, households, non-profit organisations servicing households, financial and non-financial corporations, “Ostalnoy mir” (The rest of the world) where infrastructure (communications, providers, IT organisations) provides free movement of information resources, goods and services. The scheme of organized information space development is presented in Figure 1.

Figure 1. The scheme of organised information space



In order to detect the level of development, resources, potential, ways of regulating and finding the methods of further development it is necessary to conduct general RSEC analysis, thus forming a functioning model of information space.

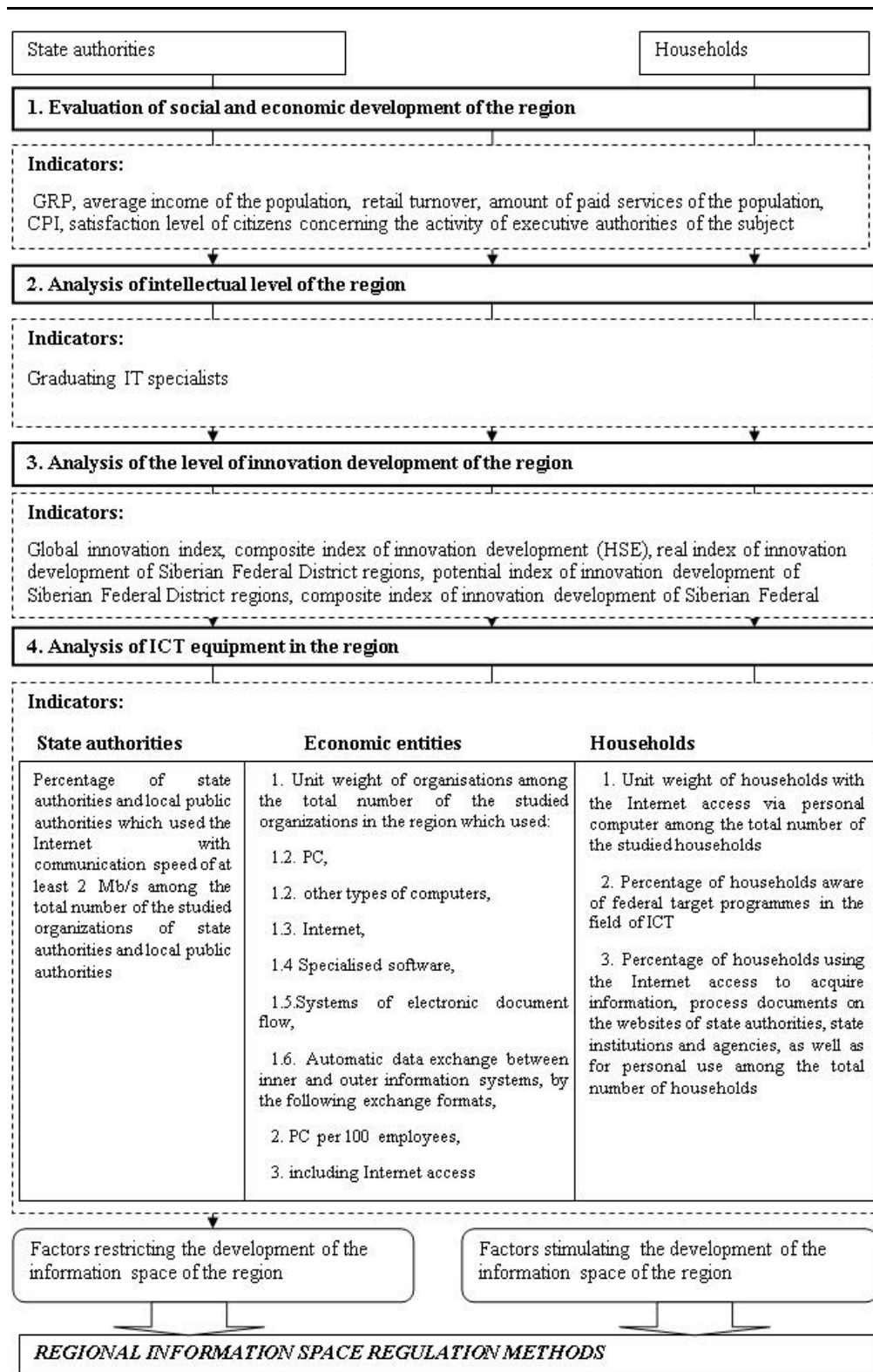
With the development of information and communication technologies the boundaries of information space are dissolving and information processes enter not only all fields of activity, but also contribute to the introduction of new subjects into the information space of the region and country on the whole.

As a result of the analysis of the existing model of information space and understanding the limits of its development, resources and needs of the existing space, missing elements of the information space are determined in these conditions. To make the information space function successfully, it is necessary to create and develop its infrastructure.

We will understand infrastructure as an integral support system for the development of new technologies, mechanisms of its distribution, development of new processes. It is characterised by a complex structure the elements of which are interacting and thus create unique and favourable conditions for the development of information projects with other elements under the action of which new information space is formed.

All the above-mentioned elements forming the organised information space exist and develop under the influence of institutional environment. Informal institutions interact with formal institutions and create certain conditions and restrictions for creation and development of organised information space. Analysis of RSEC information space is conducted in order to evaluate the potential of its development, to determine the ways of its regulation and formation of new information space.

Effective regulation of information space provides users with free access to information, stimulates the development of ICT market, and contributes to promotion of goods and services in other regions and countries, thus forming information economy. The following methodology was suggested by the authors for the comprehensive study of information space (Figure 2).



On the basis of the definition of information space, its analysis should include the evaluation of infrastructure securing the transition of information by state authorities, economic entities and households. It is reasonable to begin RSEC information space analysis with the evaluation of social and economic development of the region and identification of its place in Russian economy in order to define precondition for information space formation.

To specify the prospects of information space development from the point of view of its expansion in the field of high-technology production, as well as the use of latest scientific research results for storage, transfer and processing of the information, it is necessary to analyse innovation development of the region main indicators of which are presented in Figure 2. Analysis of information space infrastructure includes the evaluation of information and communication technologies equipment of state authorities, economic entities and households. Analysis of the space allows identifying stimulating and restricting factors of its development in the region. On the basis of the results of the analysis of existing space model measures of its regulation and creation of new RSEC information space should be suggested.

Results of the Analysis of RSEC Information Space

In 2014 deceleration of economic growth was noted in the Republic of Buryatia and in the whole Russia as well. In 2014 evaluated Gross Regional Product (GRP) of the republic increased by 0,3 % and accounted for 190,6 bln roubles, with average Russian growth rate of 100,6 %. The volume of Gross Regional Product per head of population in the Republic of Buryatia increased to 195,2 roubles per person, which is 40,2 % of average Russian rate.

Geopolitical tension and negative consequences of sanctions and retaliatory sanctions resulted in contraction of consumer demand and decrease of retail turnover and paid services for the population. In 2014 retail turnover volume decreased by 1,2 % while the volume of paid services for the population decreased by 2 %. In 2014 the republic took the 4th place among 12 Siberian Federal District regions regarding the volume of retail turnover and paid services per one citizen.

The Republic of Buryatia improved its position among the subjects of the Russian Federation in the rating of state authorities' efficiency evaluation and moved from 44th to 34th place. The Republic of Buryatia considerably improved its position due to high dynamics of economy development (25th place) and high satisfaction of the population (24th place).

On the whole, as of 2015, the Republic of Buryatia was 9th in the rating among the subjects of the Russian Federation and is one of the regions with low level of social and economic development, however the results improved as compared to 2013 (15th place).

The level of IT education among the population allows to indirectly evaluating the prospects of using new information technologies in order to expand RSEC information space. Thus, slight reduction in the number of IT graduates in 2009-2014 is an unfavourable factor for the development of IT space in general.

In 2014 there were 58,7 thousand IT graduates, which was 3% more than in 2013. Reduction in the number of graduates in Buryatia is explained by general unfavourable demographic situation in the republic and transition to the two-level education system in Russia.

As for the households of the Republic of Buryatia, they believe that distance education is necessary for the development of regional information space, which is topical for remote areas. The indicator of the number of used and created advanced production technologies characterizes the equipment of enterprises with modern technologies based on information technologies, as well as the level of these enterprises from the point of view of innovativeness of created products.

During 2008-2014 only 15 advanced technologies were created in the Republic of Buryatia (as compared to 1409 ones in the whole Russia only in 2014), and the number of used advanced production technologies during the same period became two times less (decreased from 442 technologies in 2008 to 275 technologies in 2014), while this indicator significantly increased in Russia on the whole. This is indicative of the reduction in demand for automatisisation of production process management in the republic, which may be influenced by high costs of advanced technologies, lack of understanding on the part of administrative and managerial staff as for the necessity of its implementation and decrease of high-technology enterprises in Buryatia during the crisis.

Innovations are an integral part of the development of information space from two points of view:

1. Elements of information space can be innovative and promoted through innovation projects;
2. Organised information space furthers more efficient creation, promotion and implementation of innovations.

That said it is necessary to make a comprehensive assessment of the level of development, potential and prospects of innovative activity in the Republic of Buryatia. There is worldwide growing interest in finding and stimulating the activity of creative individuals and groups. For instance, ten world leaders in the field of innovations (Switzerland, Great Britain, Sweden, Finland, the Netherlands, the USA, Singapore, Denmark, Luxemburg and Hong Kong) created closely related innovative ecosystems within which human capital investments together with strong innovative infrastructure support high creative levels. In particular, they show high performance by most of the indicators and also hold strong positions in such fields

as innovative infrastructure (including information and communication technology), business development level (such indicators as intellectual workers, interconnection between innovations and knowledge acquisition) and results of innovative activity (such indicators as creative goods and services and online art). (The Global Innovation Index 2014).

Russia is 49th in this list, between Thailand (48) and Greece (50), and has gone 13 points up. As it is noted in the report of “Global innovation index”, Russia’s strong points are related to the quality of human capital (30th place), business development (43th), development of knowledge and technologies (34th). Development of the infrastructure remains average (51st). Development of innovations is hindered by imperfect institutions (88th), poor results of creative activity (72nd) and development of domestic market (111th).

The results of the research conducted by Higher School of Economics showed that innovation development of Russian regions is rather uneven. For instance, composite index of the leading region is 3,7 times more than the index of the last one in the list, while for individual aspects of innovation development there is even greater difference. In 2014 the Republic of Buryatia was 41st in this rating, which corresponds to the third group of innovation development. (Study INSEAD: Global Innovation Index 2014, N. D.). The leaders of the rating were Moscow, the Republic of Tatarstan and Saint Petersburg.

To identify the level of innovation development of the Republic of Tatarstan at the level of Siberian Federal District (SFD), we calculated potential, real and composite indices of innovation development. The calculation is based on the methodology suggested by A.N. Lisina which allows taking into account not only the factors characterising possibilities and conditions for development of innovative activity, but also the factors reflecting real results of this activity (Lisina, 2012). In addition to this, it should be mentioned that there is a limited range of factors for calculation of potential and real indices of innovation development, which may influence the efficiency of the obtained results. Therefore, the list of factors was broadened.

To calculate the above-mentioned indicators, we used official statistics data and electronic sources (Science and innovation in the regions of Russia, N. D.; Territorial office of the Federal Service for the Republic of Buryatia statistics).

Potential index of innovation development characterises, above all, the economic environment which furthers innovation development on the whole and makes the region investment-attractive. In 2014 the Republic of Buryatia was 6th by this indicator, which is one point more than it was in 2010, and this is indicative of a rather high innovative potential. Main factors influencing positive dynamics of this indicator are: the number of staff doing scientific research and development increased by 28%; the number of researchers with academic degrees increased by 16%; the percentage of domestic expenses for research and development increased

by 3,7% (in 2010); the number of infrastructure organisations of innovative activity of the region increased by 133%; costs of technological innovations increased by 13,4% (17737,1 mln roubles). The principal restricting factor was reduction in percentage of investments in machinery, equipment and transportation facilities from the total volume of investments by 2,4%.

The calculation of real index of innovation development will allow finding out how the potential of innovation development is implemented. For instance, the Republic of Buryatia (8th) is much lower in the rating by this indicator than by potential index of innovation development, which is indicative of insufficient use of existing resources and ineffective activity of innovation infrastructure objects.

However, we should mention positive dynamics of this indicator as of 2010 - 8,75%. Such growth is mainly explained by considerable increase of released innovative products by 10877, 38 mln roubles, as well as with twofold increase of domestic expenses for scientific research and development (467,1 mln roubles in 2010, 940 mln roubles in 2014). There is a number of restricting factors: reduction in the number of issued patents by 13,8%, decrease of innovative activity of organisations by 22,7%, negative dynamics in the field of development of advanced production technologies (5 in 2010, 2 in 2014), reduction in the number of applications for a patent and issued patents, reduction in the number of used advanced production technologies (Table 1).

Table 1. Innovation development indices for the Republic of Buryatia in 2010 and 2014

Index	2010		2014	
	rating	value	rating	value
Ip – potential index of innovation development	7	0,50	6	0,53
Ir – real index of innovation development	8	0,16	8	0,17
I- composite index of II- innovation development	8	0,33	8	0,35

According to the results of composite index, which takes into account the data of potential and real innovative activity, in 2014, as well as in 2010, the Republic of Buryatia was 8th in the rating of SFD regions. The highest level of innovation development is found in Novosibirsk region. The Republic of Khakassia, Altai and Tyva have the lowest level - 0,415, 0,408 and 0,271 respectively.

Therefore, the identified potential of innovation development is not implemented effectively enough, which is proved by real index of innovation development and, as a result, has negative influence on composite index of innovation development of the Republic of Buryatia. Among main negative factors are: ineffective work of innovation infrastructure objects, concentration of innovation-active enterprises in

Ulan-Ude, imperfect system of statistical accounting, absence of marketing and organisational innovations, imperfection of legislative system, overwhelming majority of industrial enterprises among innovation-active enterprises and, as a result, overwhelming majority of industrial commodities in the structure of released innovative products - 99,6% (transport facilities and equipment, food products, production and distribution of electric power), and only 0,003% and 0,0001% for communication and scientific research respectively. Enterprises the activity of which is connected with computing machinery and technology show zero innovative activity, which has negative influence on the processes of informatisation and development of the information space of the Republic of Buryatia on the whole.

Decrease in the use of advanced technologies shows that the republic is not ready yet for the implementation of new advanced technologies due to low paying capacity of the demand, absence of high-technology production, which leads to decreased level of innovativeness in the region on the whole.

Analysis of IT equipment showed that in 2014 94,3% of organisations of the Republic of Buryatia had personal computers (93,8% - on average in Russia), which is 0,7% more than in 2013. More than 87% of them had Internet access (2014), which is 2% less than on average in Russia, in 2013 it was 85,2% and in 2012 it was 84,4%. At the same time, the number of personal computers per 100 employees has been increasing during the last four years (from 41 to 44 PCs per 100 employees). In general, similar situation is typical for the whole Russia (in 2014 it was 47 PCs). In 2014 1471 organisations of the Republic of Buryatia (1352 organisations in 2013) used information and communication technologies in their activity, which is only 7,2% of the total number of organisations). Only 41,1% organisations using ICT are situated in Ulan-Ude.

As a rule, ICT used in enterprises are not high-performance computing machines, but personal computers. It can be explained by small amount of high-technology innovation enterprises and high cost of more powerful computer. Unlike businesses, population of the Republic of Buryatia are reluctant to use information technologies in their households. This is proved by official statistics data and results of the survey conducted under the grant. The population is ready to complete additional training to use information technologies for organizing and conducting business.

The amount of organisations using the Internet (6%) in their activity is small due to the fact that the regions are remote and, as a result, there is no Internet access and poor mobile Internet in these regions.

In the research of information space in the Republic of Buryatia the indicators characterizing the level of ICT use in state authorities and local public authorities are the percentage of state and local public authorities which used the Internet with data transfer rate of at least 2 Mb/s among the total number of state and local public authorities.

In 2014 this indicator accounted for 92,8 %, which is 5-11% lower than on average in Russia. This is proved by the results of the survey of households in remote regions of Buryatia. The population confirms that infrastructure of state and local public authorities are not developed enough. This is the opinion of 52% of respondents in Zakamensk region, 40% in Kyakhtinsk region, 30% in Tunkinsk region and 34% in Barguzinsk region.

This year a joint project with Sberbank of Russia has been developed and launched. It is aimed at making electronic banking services and state service available in electronic form of “Electronic village”. Modern banking service is now available in five villages of the Republic of Buryatia: Tatarsky village in Zaigraevsk region, Kuytun village in Tarbagatay region, Sharalday village in Mukhorshibirsky region, Podlopatki village in Mukhorshibirsky region.

In most territories Electronic village points are situated in the buildings of village administration and can be accessed during working hours of local authorities. Administrations of these municipal units provide help with registration, identification and further order of service at the website of state services.

To make the information society fully developed it is necessary to involve most of the country’s population into this process. Electronic state services are being actively developed now. As the experience shows, electronic state services are widely used, and, in particular, the use of ESIA (Edinaya systema identifikatsii i autentifikatsii – United system of identification and authentication) to enter most state information systems has positive influence on citizens’ attitude towards electronic government.

Different agencies create different electronic services which are useful for the population. They allow both citizens and agencies to save their time. Therefore, we find it necessary to increase the involvement of the population of the republic in the united system of identification and authentication and create more convenient electronic services for the population.

To execute the new law on communication, state authorities developed a joint project “Elimination of digital inequality” together with Rostelecom. This project includes 124 villages on the territory of Buryatia: 120 with the population of more than 500 people and 4 villages with the population of less than 500 people. The programme will have been implemented by 2018. As a result, households will be using the Internet for additional payment, except electronic state services – access to them will be free of charge.

In 2014 organisations of the Republic of Buryatia used special software mostly to solve organisational, managerial and economic tasks (55,6% of the total amount of organisations which mentioned the use of special software). 52,7% of organisations use special software for electronic financial calculations, 49% use electronic legal reference systems. Such structure is typical for the Russian Federation in general.

And it is logical since state authorities and financial sector mostly use personal computers.

Significant changes have taken place in the structure of expenditures for information and communication technologies in the Republic of Buryatia during the past 11 years. For instance, in 2002 computing equipment prevailed among the expenditures (56%), which was indicative of low level of development of information and communication environment of the region.

In 2014 average Russian structure of costs was the following: 23,8 % on telecommunications, 22,1% - , 17% on services of outside agencies, while in Buryatia 29% - , 22,5% was spent on software, 17,2% on computing equipment. In 2014 ICT costs continued to decrease (they had been decreasing since 2012), except the costs of software.

According to the study of RSEC, one can note that information space of the Republic of Buryatia is a developing environment where all available information resources are fully used and supported by programmes and laws of the Russian Federation, projects of such large companies as Rostelecom and Sberbank and local programmes.

Discussion of the Results

The results of the analysis of information space of the Republic of Buryatia showed that until 2012 the use of main components of IT infrastructure (personal computers, advanced technologies, special software, Internet technologies) had been decreasing in businesses and households, which indicated that they did not understand the role of information technologies in the development of companies and household management.

However, after the crisis of 2012 the budget of enterprises started to increase, and in 2014 these indicators increased too, while the situation in households remained the same. Reduce in the number of IT graduates and cutback in innovation investments aggravates the situation with the development of new information space.

All these factors show that successful development of information space of the region requires not only ICT equipment for enterprises and state authorities. There should be conditions provided to make IT specialists return and stay in the Republic of Buryatia and to attract investments into ICT innovations.

The results of the analysis presented in table 2 revealed principal issues hindering the development of RSEC information space of the Republic of Buryatia.

Table 2. *Regulating measures for RSEC information space*

# subpoint	Problems	Methods of problem solution	Responsible executives
1	Lack of IT specialists	Providing state-funded places, launching coworking centres	Ministry of Education and Science, Fund for Support of Microentrepreneurship, Ministry of Industry and Trade of the Republic of Buryatia
2	Weak IT infrastructure	Launching IT parks	Economic Development Ministry
3	Inefficient implementation of state programmes	Increased control over the fulfilment of programmes and concepts	Ministry of Telecom and Mass Communications, Information technologies and document communication committee
4	Inefficient measures of innovation activity development	Development of the infrastructure of the region's innovation activity	Ministry of Education and Science, Fund for Support of Microentrepreneurship, Ministry of Industry and Trade of the Republic of Buryatia
5	Concentration of objects of innovation infrastructure and innovative activity in Ulan-Ude	Consideration of the issues of spatial placement of innovation development infrastructure	Ministry of Education and Science, Fund for Support of Microentrepreneurship, Ministry of Industry and Trade of the Republic of Buryatia
6	Imperfection of the system of statistical accounting of innovative activity	Registration of small business Registration of marketing and organizational innovations except technological ones Improvement of the system of statistical accounting of municipal regions	Federal State Statistics Service
7	Imperfection of rules and regulations basis of innovative activity	Improvement of the system of patenting of information products	Russian Agency for Patents and Trademarks

		of the Russian Federation	
8	Low level of information infrastructure (telecommunication networks, computing machinery and information systems) in remote territories	Development and use of 4G Development of technologies based on 3D information representation (cognitive 3D graphics)	Ministry of Telecom and Mass Communications, Information technologies and document communication committee
9	Insufficient knowledge of household members in the field of information technologies	Growth of the level of economic and informational literacy of the population through development and support of programmes “Increase of informational literacy of the population”	Ministry of Education and Science, Fund for Support of Microentrepreneurship
10	Digital inequality (asymmetry) in different aspects of using information resources	Development of united approach to implementation of programmes of distribution and development of information resources in terms of regional specifics	Ministry of Telecom and Mass Communications, Information technologies and document communication committee Economic Development Ministry
11	Threat to information security	Increase of the quality of protection from unauthorized access to information products and resources	Ministry of Telecom and Mass Communications, Information technologies and document communication committee
12	Disconnection between the user and the government	Simplification of authorization process when receiving state servicing based on promotion and use of electronic signature	Ministry of Telecom and Mass Communications, Information technologies and document communication committee

--	--	--	--

Development of the information space is impossible without skilled IT specialists. There should be conditions provided to make IT specialists stay in the region. Skilled regional specialists should also be trained. This can be achieved by providing state-funded places in higher educational institutions of Buryatia and, at the first stage, by establishing co-working centres aimed at the exchange of knowledge and experience of IT specialists with young employees. Russian higher educational institutions should also create projects in which students from different faculties will work together, since the Government of the Russian Federation directed its attention at project approach – “Project office” was created under the Strategic development and priority projects council under the President.

Successful and effective development of information space requires developed IT infrastructure which also contributes to involvement of skilled IT specialists. Establishing IT parks can also be a useful measure. Technoparks and IT parks are created in Moscow, Krasnodar, Rostov, Nizhny Novgorod, Kazan, Novosibirsk and other regions of Russian with the support of the government. IT park residents are provided with advanced technical infrastructure, financial, information, legal and scientific support, which allows implementing their new innovative solutions. IT parks stimulate the activity of young scientists, as these parks provide a whole complex of social infrastructure to satisfy innovator’s vital requirements. An IT park project was not supported by the government of the Republic of Buryatia (expensive and inefficient), as it involves considerable expenditure. Local enthusiasts only managed to create an anti-café for software developers.

In a number of regions IT companies are supported not only at the federal level, but also by local authorities. For instance, in 2014 Novosibirsk and Penza regions offered lower profit tax of 15,5% for IT companies.

On 29 June 2015 the President of the Russian Federation enacted the Federal law #188 on the creation of united registry of Russian software developed by the Ministry of Telecom of the Russian Federation. The law came into effect on 1 January 2016. According to this law, state and municipal authorities and institutions must use Russian software from this registry in the first place and purchase foreign software only in case there is no Russian analogue. This will give a stimulus to the development of Russian software and create additional working places for Russian developers

As the experience of state programmes implementation shows, they were not efficient enough for the development of information space. Therefore, it is necessary to develop the programme more thoroughly together with social council and control its local implementation.

Conclusion

As a result, measures for the development of new RSEC information space should be aimed at the development of Russian ICT sector, mostly through strengthening of private-public partnership, which would attract skilled IT specialists and investments to the region.

Acknowledgements

The research is conducted with financial support from Russian Foundation for Basic Research and the Ministry of Education of the Republic of Buryatia within the scientific project #NK 15-46-04388.

References

- Akopova, S.E., Przhedetskaya, V.N. 2016. Imperative of State in the Process of Establishment of Innovational Economy in the Globalizing World. *European Research Studies Journal*, 19(2), 79-85.
- Bashmakov, A.I., Popov, V.V., Zhedyaevskii, N.D., Chikichev, N.D. and Voyakin, A.E. 2015. Development Regularities of Technical Systems as a Means of Scientific, Methodological and Information Support of Idea and Innovation Management. *European Research Studies Journal*, 18(4), 35-46.
- Bell, D. 1965. *The End of Ideology: On the Exhaustion of Political Ideas in the Fifties*. New York: Free Press, pp. 540.
- Bell, D. 1973. *The coming of post-industrial society: A venture of social forecasting*. New York: Basic Books, pp. 499.
- Dzhukha, M.V., Kokin, N.A., Li, S.A., Sinyuk, Yu.T. 2017. Research and Development Intensity in Business: Russia and EU. *European Research Studies Journal*, 20(1), 64-76.
- Gosudarstvennaja programma Rossijskoj Federacii "Informacionnoe obshchestvo (2011-2020 gody)" utv. postanovleniem Pravitel'stva RF [State programme of the Russian Federation "Information society (2011-2020)" approved by the decree of the Government of the Russian Federation issued on 15.04. 2014 # 313
- Informacionnoe prostranstvo Rossii: struktura, osobennosti funkcionirovanija, perspektivy evoljucii [Information space of Russia: structure, operation specifics, evolution prospects], (N. D.), Daily online journal. Retrieved 19.07.2016 from <http://www.dzjalosh.ru/01-comm/books/info-prostranstvo/info-prostranstvo.pdf>
- Heim, M. 1994. *The Metaphysics of virtual reality*. Oxford: Oxford University Press
- Kossova, T., Kossova, E. and Sheluntcova, M. 2014. Estimating the Relationship between Rate of Time preferences and Socio Economic Factors in Russia. *European Research Studies Journal*, 17(1), 39-68.
- Lisina, L.N. 2012. Metodika ocenki urovnja innovacionnogo razvitija regiona [Methodology of evaluation of regional innovation development system]. *Bulletin NSU*, 115-126.
- Moiseev, N.N. 2001. *Universum. Informacija. Obshchestvo* [Universum. Information. Society.] Moscow: Sustainable peace, pp. 200.
- Nenashev, A.I. 2008. Informacionnoe prostranstvo sovremennogo obshchestva: kommunikacionnyj aspekt [Information space of modern society: communicational

- aspect]: candidate's thesis (philology). Saratov State University named after N. G. Chernyshevsky, Saratov.
- Salimova, T.A. and Makolov, I.V. 2016. Unused Potential of Quality Management Systems of the Russian Companies: an Empirical Study. *European Research Studies Journal*, 19(3) Part A, 150-166.
- Shabalina, I.I. 2001. Formirovanie informacionnogo prostranstva regiona [Formation of information space of the region]: candidate's thesis. Russian Academy of State Service, Moscow.
- Science and innovation in the regions of Russia, (N. D.). Retrieved 14.08.2016 from http://regions.extech.ru/regions/region_info1.php?id=4
- Shekhovtsov, V.R., Ponomareva, A.M., Yaroshenko, G.S., Khaibullin, R.L. 2017. Instruments of Investment Attraction in Order to Fulfill the Structural Priorities of Sustainable Regional Development (Study Based on the Rostov Region. *European Research Studies Journal*, 20(1), 337-349.
- Stroeve, O., Lyapina, I., Konobeeva, E. and Konobeeva, O. 2015. Effectiveness of Management of Innovative Activities in Regional Socio-Economic Systems. *European Research Studies Journal*, 18(3), 63-67.
- Stroeve, O.A., Mironenko, V.N., Lyapina R.I. and Petrukhina, V.E. 2016. Peculiarities of Formation of Socially Oriented Strategy of Economic Growth of National Economy. *European Research Studies Journal*, 19(2), 161 – 170.
- Study INSEAD: Global Innovation Index. 2014. Retrieved 26.09.2016 from <http://gtmarket.ru/news/2014/07/18/6841> (accessed: 26.09.2016).
- The Global Innovation Index. 2014. Retrieved 20.09.2016 from http://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2014-intro6.pdf
- Territorial office of the Federal Service for the Republic of Buryatia statistics. (N. D.). Retrieved 02.08.2016 from http://burstat.gks.ru/wps/wcm/connect/rosstat_ts/burstat/ru/publications/official_publications/electronic_versions/
- Vershinskaja, O.N. 1999. Sushhestvujushhie modeli postroenija informacionnogo obshhestva [Existing models of information society construction]. *Information society*, 3, 53-58.
- Vovchenko, G.N., Holina, G.M., Orobinskiy, S.A. and Sichev, A.R. 2017. Ensuring Financial Stability of Companies on the Basis of International Experience in Construction of Risks Maps, Internal Control and Audit. *European Research Studies Journal*, 20(1), 350-368.